



Docket No.: 264199US0PCT



COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

RE: Application Serial No.: 10/521,100

Applicants: Yoshifumi SUGITO, et al.

Filing Date: January 13, 2005

For: DESALTING PROCESS

Group Art Unit: 1764

Examiner:

SIR:

Attached hereto for filing are the following papers:

Letter

**International Preliminary Report on Patentability**

Our check in the amount of **\$0.00** is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Norman F. Oblon

Paul J. Killos  
Registration No. 58,014

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DOCKET NO: 264199US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
YOSHIFUMI SUGITO :  
SERIAL NO: 10/521,100 :  
FILED: JANUARY 13, 2005 : GROUP ART UNIT: 1764  
FOR: DESALTING PROCESS :

LETTER

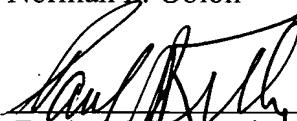
COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicants wish to make of record the attached English translation of the International Preliminary Report on Patentability. Copies of the references listed therein were filed on May 3, 2005.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman E. Oblon

  
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Registration No. 58,014  
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(OSMMN 06/04)

From the INTERNATIONAL BUREAU

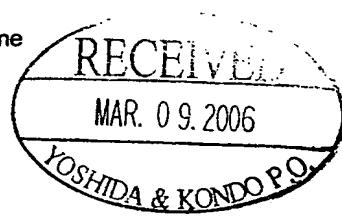
**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

Date of mailing (day/month/year)  
02 March 2006 (02.03.2006)

To:

YOSHIDA, Katsuhiro  
Akisu Building  
30, Kanda Sakuma-cho 3-chome  
Chiyoda-ku  
Tokyo 101-0025  
JAPON



Applicant's or agent's file reference PCT-32-DN	<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/JP2004/001475	International filing date (day/month/year) 12 February 2004 (12.02.2004)
Applicant DAINICHISEIKA COLOR & CHEMICALS MFG. CO., LTD. et al	

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Masashi Honda
Facsimile No.+41 22 740 14 35	Facsimile No.+41 22 338 70 10

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>PCT-32-DN</b>	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. <b>PCT/JP2004/001475</b>	International filing date ( <i>day/month/year</i> ) <b>12 February 2004 (12.02.2004)</b>	Priority date ( <i>day/month/year</i> ) <b>14 February 2003 (14.02.2003)</b>	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant <b>DAINICHISEIKA COLOR &amp; CHEMICALS MFG. CO., LTD.</b>			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 11 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input checked="" type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/> Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report  
**22 February 2006 (22.02.2006)**

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35	Authorized officer  <b>Masashi Honda</b>  Telephone No. +41 22 338 70 10
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

Translation

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference  PCT-32-DN		Date of mailing (day/month/year)  25.05.2004
<b>FOR FURTHER ACTION</b>  See paragraph 2 below		
International application No.  PCT/JP2004/001475	International filing date (day/month/year)  12.02.2004	Priority date (day/month/year)  14.02.2003
International Patent Classification (IPC) or both national classification and IPC  C02F1/44, B01D61/02, 61/14, C02F1/04		
Applicant  DAINICHISEIKA COLOR & CHEMICALS MFG. CO., LTD. et al		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/  JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/001475

Box No. I Basis of the report

1. With regard to the language, this opinion has been established on the basis of:  
 the international application in the language in which it was filed  
 the translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
 a sequence listing  
 table(s) related to the sequence listing
  - b. format of material  
 on paper  
 in electronic form
  - c. time of filing/furnishing  
 contained in the international application as filed  
 filed together with the international application in electronic form  
 furnished subsequently to this Authority for the purposes of search
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/001475

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**1. Statement**

Novelty (N)	Claims	6, 10-12, 14, 15	YES
	Claims	1-5, 7-9, 13	NO
Inventive step (IS)	Claims	10-12	YES
	Claims	1-9, 13-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

**2. Citations and explanations:**

Claims 1, 3-5, 8, 9 and 13

Document 1 (JP 61-061690 A (Mitsui Engineering & Shipbuilding Co., Ltd.), 29 March 1986; page 2, lower left column, lines 8-12) discloses a process for producing freshwater from seawater (desalination process) wherein, after separating freshwater from seawater by flash distillation (step 1), the concentrated seawater remaining after distillation is further concentrated using a reverse osmosis membrane to separate freshwater (step 2); and this is no different from the above claims.

Claims 1, 2, 7-9 and 13

Document 2 (JP 2001-029754 A (Toyobo Co., Ltd.), 6 February 2001; claims and paragraph [0001]) discloses the use of a nanofiltration membrane to desalt salt water (seawater); and this is no different from the above claims.

Claim 6

Document 1: see comments above

Document 3 (JP 08-276122 A (Dainichiseika Color & Chemicals Mfg. Co., Ltd.), 22 October 1996; paragraphs [0002] and [0004]) discloses the use of a charge-mosaic

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

membrane for desalting seawater.

Therefore, a person skilled in the art could easily conceive of using a "charge-mosaic membrane" as in document 3 instead of the "reverse osmosis membrane" indicated in document 1 for the membrane treatment used in desalting seawater.

Claims 14 and 15

Document 1: see comments above

Document 4 (JP 09-248429 A (Toray Industries, Inc.), 22 September 1997; paragraph [0025]) indicates distillation means such as vacuum distillation (decreased pressure distillation) and flash distillation.

Document 5 (JP 63-287497 A (Nippon Flour Mills Co., Ltd.), 24 November 1988; page 4, upper right column, lines 5-9) discloses a centrifugal thin-membrane vacuum distillation device as a distillation means.

Therefore, since both flash distillation and vacuum distillation are distillation means known before the present application, and a centrifugal thin-membrane vacuum distillation device was also known for vacuum distillation, use of vacuum distillation, such as centrifugal thin-membrane vacuum distillation, instead of flash distillation as the distillation means in the invention disclosed in document 1 is a suitable option available to a person skilled in the art.

Claims 10-12

Document 1: see comments above

Document 2: see comments above

Neither document discloses or indicates combining a charge-mosaic membrane and another desalting means, or

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/001475

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

limiting the degree of concentration.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/001475

Box No. VI

Certain documents cited

1. Certain published documents (Rule 43bis.1 and 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
JP 2003-103257 A	08.04.2003	28.09.2001	

2. Non-written disclosures (Rule 43bis.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/001475

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 1

In the invention set forth in claim 1 a "second step in which at least part of the water-soluble salt is removed from the concentrated starting water" is mentioned; however, it is unclear whether "at least part of the water-soluble salt is removed" from both of the two types of treatment water discharged from the second, membrane treatment, step (i.e. from the water which passes through or water which does not pass through).

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/001475

**Box No. VIII      Certain observations on the international application**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/001475

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/001475

**Supplemental Box**